

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of decomposing an image comprising ~~the steps of:~~

[[a]] decomposing the image into a plurality of stripes spanning said image;

[[b]] determining a layer base color, a layer size and a layer offset of at least one stripe of the plurality of stripes;

[[c]] separating the stripe into a foreground layer, a background layer and a mask layer based on the layer base color and the layer offset; and

[[d]] interpolating irrelevant pixel values in the foreground layer and background layer for coder efficiency.

2. (Currently Amended) The method of claim 1 further comprising ~~the step of:~~

——e)——encoding the foreground layer, background layer, and mask layer.

3. (Previously Presented) The method of claim 2 wherein the foreground layer and background layer are JPEG encoded, wherein the mask layer is JBIG encoded.

4. (Currently Amended) The method of claim 1 wherein ~~step d)~~
said interpolating irrelevant pixel values further comprises ~~the steps of:~~

[[i)]] determining the layer base color and the layer offset to a common reduced area of at least one layer to identify image and mask layer values for all regions except an overlapped common reduced area; and

[[ii)]] separating the overlapped common reduced area into a foreground layer and a background layer.

5. (Currently Amended) The method of claim 1 wherein ~~step d)~~
said interpolating irrelevant pixel values further comprises ~~the steps of:~~

[[i)]] classifying at least one pixel within a selected block of a selected layer as relevant or irrelevant;

[[ii)]] generating a coefficient block representing a forward transform of the selected block; and

[[iii)]] modifying coefficient values to generate a modified coefficient block subject to a set of pre-determined constraints including a constraint that the relevant pixels have a same value in an inverse transformation of the modified coefficient block as in the selected block.

6. (Currently Amended) The method of claim 5 wherein ~~step d)iii)~~
said modifying coefficient values includes ~~the steps of:~~

[[a)]] selecting a coefficient from the coefficient block in a reverse zig-zag order wherein the selected coefficient has a non-zero value; and

[[b)]] finding a feasible solution resulting in a zero quantizable selected coefficient subject to the pre-determined constraints.

7. (Original) The method of claim 5 wherein the coefficient values are modified subject to a constraint that no zero quantizable coefficient preceding the selected coefficient in the reverse zig-zag order is permitted to become non-zero quantizable.

8. (Original) The method of claim 5 wherein values of individual elements of a mask classify pixels in corresponding positions within the selected block as relevant or irrelevant.

9. (Currently Amended) The method of claim 5 further comprising ~~the step of:~~

~~—e)—~~ providing the modified coefficient block to a block compression process.

10. (Currently Amended) The method of claim 5 wherein ~~step d)~~ said interpolating irrelevant pixel values further comprises ~~the step of~~ applying a linear program to identify a feasible solution resulting in a zero-quantizable coefficient subject to the constraints.

11. (Currently Amended) The method of claim 10 further comprising ~~the step of~~ applying a quadratic program to generate a modified selected block having minimal energy.

12. (Currently Amended) The method of claim 10 further comprising ~~the step of~~ terminating further modifications to the coefficient block if a ratio of the energy of the modified block to the energy of the initial selected block exceeds a pre-determined threshold.

13. (Original) The method of claim 5 wherein the forward transform is one of a discrete cosine, a discrete sine, and a discrete Fourier transform.

14. (Currently Amended) A method of decomposing an image comprising ~~the steps of~~:

[[a))] decomposing the image into a plurality of stripes;

[[b))] decomposing at least one stripe into foreground and background image layers, and a mask layer;

[[c))] identifying an area of intersection of a common reduced foreground area and a common reduced background areas, wherein the identifying further comprises:

[[i))] computing a maximum block range for a selected block of the area of intersection; and

[[ii]] assigning at least one pixel within the selected block to one of the foreground and background planes in accordance with whether the average luminance of the selected block is closer to a previous average foreground luminance or previous average background luminance, respectively, if the maximum block range is not greater than a pre-determined threshold; and

[[d]] interpolating any irrelevant pixel values within the area of intersection for coder efficiency for at least one layer.

15. (Original) The method of claim 14, wherein the area of intersection is selected to have an edge that is $8N$ pixels from at least one of an edge of the common reduced foreground area and the common reduced background area, wherein N is an integer, wherein $N \geq 0$.

16. (Currently Amended) The method of claim 14, wherein ~~step d)~~ said interpolating any irrelevant pixel values further comprises ~~the steps of:~~

[[i]] selecting a block of pixels; and

[[ii]] classifying at least one pixel with the selected block as irrelevant or relevant.

17. (Currently Amended) The method of claim 16, wherein said interpolating any irrelevant pixel values further comprises ~~the steps of:~~

[[iii]] calculating an average value of at least one relevant pixel within the selected block; and

[[iv]] assigning the average value to at least one irrelevant pixels within the selected block.

18. (Currently Amended) The method of claim 14, wherein ~~step e)~~ said identifying an area of intersection further comprises ~~the steps of:~~

[[i]] computing a maximum block range for a selected block of the area of intersection;

[[ii]] dividing pixels within the selected block into a plurality of groups; and

[[iii]] ~~assign~~ assigning at least one selected group to one of the foreground and background planes in accordance with a relative average luminance value of the selected group and another group, if the maximum block range exceeds a pre-determined threshold.

19. (Currently Amended) The method of claim 18, wherein ~~step e)iii)~~ said assigning at least one selected group further comprises ~~the step of~~ assigning the selected group to the background layer and the other group to the foreground layer if an average luminance of the selected group is greater than an average luminance of the other group, wherein the selected group is assigned to the foreground layer and the other group to the background layer if the average luminance of the selected group is not greater than the average luminance of the other group.

20. (Cancelled)